OEM EVALUATION PROTOTYPES

TELEDYNE
ELECTRONIC TECHNOLOGIES
Analytical Instruments

An Allegheny Teledyne Company

UFO - 130
FAST OXYGEN SENSOR

(2"x 2" Small Amplifier Board)

OEM INTERFACE SPECIFICATION

(OEM COMMANDS, ELECTRICAL AND MECHANICAL INTERFACES)

REVISION 1.1

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1. Introduction

The Teledyne Analytical Instruments Model UFO-130 **Fast Oxygen Sensor** is designed for side stream breath-by-breath application, for use in monitoring equipment. Although there has been a need for a fast oxygen to compliment the fast CO_2 readings, until now, there has not been a satisfactory or cost effective method of presenting the Fast Oxygen readings.

What is required is a simple to use, fast and accurate sensor that can measure in the 80 to 130 mSec range and deliver both the numeric results and the wave form.

Teledyne's FAST OXYGEN SENSOR can provide the same type of data for oxygen as you now see with Carbon Dioxide. In addition we have tested and confirmed that the new FAST OXYGEN SENSOR meets the requirements of ISO 7767, ASTM F1462-93 and the CE requirements.

The best part of the Teledyne's FAST OXYGEN SENSOR is its low cost and easy implementation.

2. Specifications

Sensor Model:	UFO 130
Range:	0% to 100% O_2
10-90 Resonse Time:	70mSec to 130mSec
Volt Output Range:	0 to 4V (0 to 100% O_2)
Cross Interference:	Referenced to ISO 7767
Linearity:	Less than ± 1.0% of full scale when calibrated on air and 100% O_2 at room temperature and pressure.
Resolution:	Better than 0.1% O_2
Operating Humiduty:	0 to 99% RH, non-condensing
Power Supply:	+ 12V, - 12V
Power Consumption:	< 200 mW
Weight:	Sensor <1.0 oz
	Electronics <1½ oz
Size:	1.5" x 1.5" x 4" (Sensor/Board)
Sensor Life Expectancy:	6 months
Standards:	ISO 7767, ASTM-F1462-93

3. UFO-130 Fast Oxygen Sensing Unit

3.1 Features

The Teledyne UFO-130 is a fast oxygen sensing unit for side stream breath-by-breath application. The unit features low cost, low power consumption, yet fast and accurate response. Operation of the unit is simple, no reference sampling or complicating maintenance is needed. Both vaccum and pressure sampling can be used.

3.2 Operation Principle

The UFO-130 is based on the classical micro-fuel cell oxygen sensing technology. During the sensing process, the oxygen molecules in the testing gas diffuse through the sensing membrane and become reduced at the sensing electrode creating a current signal. The current signal is proportional to the oxygen partial pressure in the testing gas. The fast response of the UFO-130 unit is achieved by combining unique design of pneumatic sampling system, fast sensing membrane, and the state-of-the art signal processing electronics.

4. Installation

- Attach the sensor output connector (5) of the cable (4) to sensor output header.

- Attach sampling tubing as described in section 5.2

- Attach the instrument power/signal cable to the connector (1). Refer to Fig. 1, and section 5.1.

5. Interfacing the UFO-130

5.1 Electronic Interface

The electronic interface includes the power input and the signal output. It is a polarized and locking connector shown as **J1** in the electronic PCB assembly drawing. The pin connections are:

1. -12 V dc power input.
2. Analog ground.
3. Signal output.
4. Analog ground.
5. + 12 V dc power input.

NOTE: TAI recommends that Methode/Jaguar Connector (P/N 1300-105-4XX) or equivalent should be used.

Note that the analog ground connections are connected together at the connector. The signal output is referenced to analog ground. The power consumption of the unit is less than 200 mW.

5.2 Gas Sampling Interface

There is a sample gas in port and a sample gas out port on the unit. The sample gas out port is a female luer connector and the sample gas in port is a 1/16 inch OD tubing. In the case of vacuum sampling, connect the vacuum pump to the sample gas out port and the side stream sampling tubing to the sample gas in port. In the case of pressure sampling, simply connect the side stream sampling tubing to the sample gas in port and leave the luer connector open to the atmosphere.

6. Sensor Replacement

- Turn power off.
- Remove connector (5) of cable (4) from the sensor (6).
- Disconnect tubing fitting from port (7) and port (8).
- Replace with new sensor in the reverse order.
  (Refer to Fig. 1 and section 4).

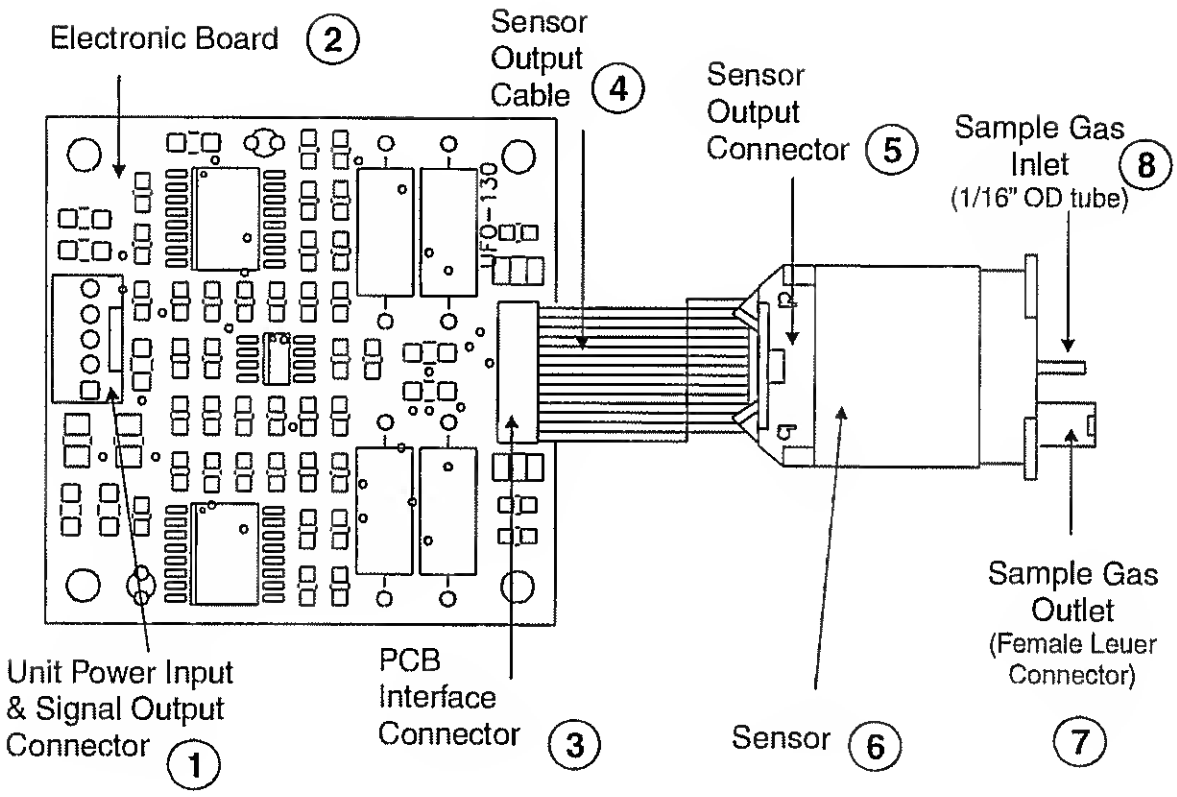

Fig. 1 Sensor - PCB Assembly Top View